MOVING OBJECTS PRESENTED BY A TOUCH INPUT DISPLAY DEVICE

TECHNICAL FIELD

[0001] The present invention is generally related to the field of touch input display devices and more particularly towards a method, touch input display device and computer program product for moving at least one object presented by the touch input display device.

BACKGROUND OF THE INVENTION

[0002] It has become more and more popular to provide touch input display devices in different types of systems and devices, like for instance in cellular phones, lap top computers and PDAs. On such a display it is then possible to provide icons, a keyboard or a keypad, which activates a function or enters letters, numbers or symbols when a user directly or via some instrument contacts or is close to physical contact with the display. Activation can be provided either by the fingers of the user or other input devices like for instance a pen.

[0003] These devices are however very often small in size and uncomfortable for a user to use for entering information, perhaps because the user is provided with big hands, is left handed or has a general feeling of being uncomfortable.

[0004] In these cases it would be advantageous for the user to be able to move the objects provided on the display, like for instance keys in a keypad in order to better adapt to his personal way of using the device.

[0005] It is known to provide icons on a touch input display device that can be moved. In for instance US2002/0008691, there is described how icons on a display can be moved. Here an icon is moved through a first click on it in order to activate it and thereafter the icon can be moved on the display by using a finger. Moving is then carried out through dragging the object with the use of the finger. The document also describes how a pressure applied in a vertical direction on the object is used for determining if a move is to be made or if an activation of a function associated with the object is to be made. However, since the described moving is related to pressure, the document is limited to devices that allow pressure to be detected.

[0006] In view of this it would be beneficial to provide an improved touch input display device allowing simpler relocation of displayed objects.

SUMMARY OF THE INVENTION

[0007] The present invention is therefore directed towards solving the above-mentioned problem of providing an improved way to relocate displayed objects in a touch input display device.

[0008] According to a first aspect of the present invention, this object is achieved by a method of moving at least one object presented by a touch input display device comprising the steps of:

- **[0009]** detecting a touching member at least being in close proximity of a first object at a first location provided by the touch input display device,
- **[0010]** determining a distancing factor of the first object caused by the detection of the touching member, and
- **[0011]** moving the first object in a direction and a distance selected according to the distancing factor for presenting the object at a second location.

[0012] According to a second aspect of the present invention, the object is also achieved by a touch input display device for allowing movement of at least one presented object and comprising:

- **[0013]** an information presentation unit arranged to present a number of objects,
- **[0014]** a touch detecting unit arranged to detect a touching member at least being in close proximity of a first object at a first location provided by the touch input display device, and
- **[0015]** a control unit arranged to:
  - **[0016]** control the presenting of objects by the information presentation unit,
  - **[0017]** determine a distancing factor of the first object caused by the detection of the touching member, and
  - **[0018]** order the information presentation unit to move the first object in a direction and a distance selected according to the distancing factor for presenting the object at a second location.

[0019] According to a third aspect of the present invention, the object is also achieved by a computer program product for allowing movement of at least one object presented in a touch input display device, comprising computer program code, to make a computer execute, when said program code is loaded in the computer:

- **[0020]** detect a touching member at least being in close proximity of a first object at a first location provided by the touch input display device,
- **[0021]** determine a distancing factor of the first object caused by the detection of the touching member, and
- **[0022]** move the first object in a direction and a distance selected according to the distancing factor for presenting the object at a second location.

[0023] With the present invention there are associated a number of advantages. The invention allows the use of one touch of an object to determine the movement of an object. In this way drag and drop operations are not needed. The invention furthermore allows the rearranging of objects, which is of advantage if a user has special needs regarding the outline of objects in a touch input display device.

[0024] According to claim **2** touching member actions or effects caused by touching member actions at a peripheral area of the first object are detected. This feature has the advantage of allowing determination of distance and direction by looking at the peripheral region. In this way it is possible to move the object if this region is effected and not move the object if the region is not effected.

[0025] According to claim **3**, the touch input device comprises a set of display elements and said first object is made up of a group of display elements adjacent each other. This feature has the advantage of simplifying determination for what part of an object a touching member is being detected or has caused an effect.

[0026] According to claim **4** the first object is provided as a number of flexible display elements that have been physically raised in relation to at least display elements neighboring said first object, the detecting comprises detecting a shear force on the first object caused by a touch of the touching member, and the determining of the distancing factor comprises determining a distancing factor that is dependent on the shear of said first object. This feature has the advantage of providing an object that is tactile. Another advantage is that the size and direction of movement is detected through the horizontal